



## Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-542



### **LPD 17 San Antonio Class Amphibious Transport Dock (LPD 17)**

As of FY 2015 President's Budget

Defense Acquisition Management  
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(DAMIR)

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## Common Acronyms and Abbreviations

Acq O&M - Acquisition-Related Operations and Maintenance  
APB - Acquisition Program Baseline  
APPN - Appropriation  
APUC - Average Procurement Unit Cost  
BA - Budget Authority/Budget Activity  
BY - Base Year  
DAMIR - Defense Acquisition Management Information Retrieval  
Dev Est - Development Estimate  
DoD - Department of Defense  
DSN - Defense Switched Network  
Econ - Economic  
Eng - Engineering  
Est - Estimating  
FMS - Foreign Military Sales  
FY - Fiscal Year  
IOC - Initial Operational Capability  
\$K - Thousands of Dollars  
LRIP - Low Rate Initial Production  
\$M - Millions of Dollars  
MILCON - Military Construction  
N/A - Not Applicable  
O&S - Operating and Support  
Oth - Other  
PAUC - Program Acquisition Unit Cost  
PB - President's Budget  
PE - Program Element  
Proc - Procurement  
Prod Est - Production Estimate  
QR - Quantity Related  
Qty - Quantity  
RDT&E - Research, Development, Test, and Evaluation  
SAR - Selected Acquisition Report  
Sch - Schedule  
Spt - Support  
TBD - To Be Determined  
TY - Then Year  
UCR - Unit Cost Reporting

## Program Information

**Program Name**

LPD 17 San Antonio Class Amphibious Transport Dock (LPD 17)

**DoD Component**

Navy

## Responsible Office

**Responsible Office**

CAPT Darren Plath  
LPD 17 Amphibious Transport Dock  
Ship Program Office (PMS317)  
PEO Ships  
Washington, DC 20376-2401  
[darren.plath@navy.mil](mailto:darren.plath@navy.mil)

**Phone** 202-781-0159**Fax** --**DSN Phone** 326-0159**DSN Fax** --**Date Assigned** August 27, 2012

## References

**SAR Baseline (Development Estimate)**

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated June 17, 1996

**Approved APB**

Navy Acquisition Executive (NAE) Approved Acquisition Program Baseline (APB) dated September 18, 2011

## **Mission and Description**

The LPD 17 San Antonio Class Amphibious Transport Dock Ship is the functional replacement for the LPD 4, LSD 36, LKA 113, and LST 1179 Classes of Amphibious Ships for embarking, transporting and landing elements of a Marine landing force in an assault by helicopters, landing craft, amphibious vehicles, and by a combination of these methods to conduct the primary amphibious warfare mission.

## Executive Summary

The LPD 17 program continues to leverage the lessons learned in ship construction processes, shipbuilder quality assurance, and training philosophies; and the success from the incorporation of those lessons was demonstrated throughout 2013 as LPD 25 (SOMERSET) achieved the highest Acceptance Trial scores to date for the class and eight LPD 17 class ships operated as Fleet assets.

LPD 24 (USS ARLINGTON) and LPD 23 (USS ANCHORAGE) were formally commissioned in April 2013 and May 2013, respectively; and responsibility for those two ships will transfer from the acquisition program office to the in-service program office in 2014. The ceremony for LPD 23 marked the first Navy ship commissioning in the namesake city.

LPD 25 was delivered to the Navy in October 2013 and will be the last LPD 17 class ship to be erected and assembled at the Huntington Ingalls Industries (HII) Avondale shipyard. The ship was commissioned in Philadelphia on March 1, 2014.

As of December 2013, LPD 26 and LPD 27 were 48% and 15% complete, respectively. The FY 2015 PB request includes cost to complete funding for LPD 26 to cover government liabilities driven by contract clauses for deferred depreciation expenses from Hurricane Katrina and the Avondale shipyard restructuring/closure. Increases to the ship's Estimate at Completion and a change to federal law associated with the Pension Protection Act are also factored into the request. The LPD 27 Integrated Baseline Review to assess the production plan and establish the Earned Value Management baseline was completed in July 2013. A portion of LPD 27 units are being fabricated at the Avondale shipyard as HII prepares for the shipyard's closure in the latter part of 2014. The program office continues to monitor that impending closure and associated costs to limit the Navy's liability.

The FY 2013 Continuing and Furthering Appropriations Bill added Advanced Procurement funding for a twelfth LPD 17 ship.

There are no significant software-related issues with the new construction program at this time.

## Threshold Breaches

### APB Breaches

<b>Schedule</b>		<input type="checkbox"/>
<b>Performance</b>		<input type="checkbox"/>
<b>Cost</b>	RDT&E	<input type="checkbox"/>
	Procurement	<input type="checkbox"/>
	MILCON	<input type="checkbox"/>
	Acq O&M	<input type="checkbox"/>
<b>O&amp;S Cost</b>		<input type="checkbox"/>
<b>Unit Cost</b>	PAUC	<input type="checkbox"/>
	APUC	<input type="checkbox"/>

### Nunn-McCurdy Breaches

<b>Current UCR Baseline</b>		
	PAUC	None
	APUC	None
<b>Original UCR Baseline</b>		
	PAUC	None
	APUC	None



# Schedule



<b>Milestones</b>	<b>SAR Baseline Dev Est</b>	<b>Current APB Development Objective/Threshold</b>		<b>Current Estimate</b>
Milestone I	JAN 1993	JAN 1993	JUL 1993	JAN 1993
DT&E (DT-I)				
Start	MAR 1993	MAR 1993	SEP 1993	MAR 1993
Complete	FEB 1996	FEB 1996	AUG 1996	FEB 1996
OT&E (OT-IA)				
Start	JAN 1995	JAN 1995	JUL 1995	JAN 1995
Complete	MAR 1995	MAR 1995	SEP 1995	MAR 1995
OT&E (OT-IB)				
Start	FEB 1996	FEB 1996	AUG 1996	FEB 1996
Complete	APR 1996	APR 1996	OCT 1996	APR 1996
Milestone II	JUN 1996	JUN 1996	DEC 1996	JUN 1996
Lead Ship Award	AUG 1996	AUG 1996	FEB 1997	DEC 1996
DT&E (DT-IIA)				
Start	SEP 1996	APR 1997	OCT 1997	APR 1997
Complete	AUG 1998	MAR 2003	SEP 2003	MAR 2003
OT&E (OT-IC)				
Start	SEP 1998	N/A	N/A	N/A
Complete	MAR 1999	N/A	N/A	N/A
OT&E (OT-IIA)				
Start	JUN 2003	MAY 1999	NOV 1999	MAY 1999
Complete	SEP 2003	MAY 2000	NOV 2000	MAY 2000
DIT (OT-IIB)				
Start	N/A	JAN 2002	JUL 2002	JAN 2002
Complete	N/A	MAR 2003	SEP 2003	MAY 2003
DT&E (DT-IIB)				
Start	SEP 1998	SEP 2002	MAR 2003	SEP 2002
Complete	JUN 2002	JUL 2005	JAN 2006	JUL 2005
Lead Ship Delivery	JUN 2002	JUL 2005	JAN 2006	JUL 2005
DT&E (DT-IIC)				
Start	JUL 2002	JUL 2005	JAN 2006	JUL 2005
Complete	JAN 2004	NOV 2006	MAY 2007	MAY 2007
IOT&E (OT-IIC)				
Start	N/A	JAN 2006	JUL 2006	JAN 2006
Complete	N/A	OCT 2008	APR 2009	DEC 2008
Milestone III	AUG 2007	N/A	N/A	N/A
LEAD SHIP IOC	JAN 2004	APR 2008	OCT 2008	APR 2008
FOT&E (OT-III)				
Start	JAN 2011	JUL 2010	JAN 2011	JUL 2010

**Change Explanations**

None

**Acronyms and Abbreviations**

DIT - Design Integration Testing

DT - Developmental Test

DT&E - Developmental Test and Evaluation

FOT&E - Follow-on Operational Test and Evaluation

IOT&E - Initial Operational Test and Evaluation

OT - Operational Test

OT&E - Operational Test and Evaluation

## Performance

Characteristics	SAR Baseline Dev Est	Current APB Development Objective/Threshold		Demonstrated Performance	Current Estimate
Mobility					
Sustained Speed (Kts)	23	23	21.5	24	24
Endurance ((NM)(K) @ Kts)	10/22	10/22	9.5/20	10.6/20	10.6/20
Amphibious Warfare Embarkation (Net)					
Troops	750	750	650	720	720
Vehicles (Sq Ft)(k)	25	25	22	22	22
Cargo (Cubic Feet)(k)	25	25	22	34	34
Bulk Fuel (Gals)(k)	325	325	250	307	307
LCAC	2	2	1(+1)	2	2
VTOL Land/Launch Spots (CH-46 or CH- 53E or MV-22)	4/3/2	4/3/2	4/2/2	4/2/2	4/2/2
VTOL Maint/Storage (CH-46 or CH-53E or MV-22)	3/1/1	3/1/1	2/1/1	2/1/1	2/1/1
Ship To Shore Capability (LCAC)					
Sustained Operations (reload 6 LCACs) (mins)	220	220	285	274	274
Operational Availability (Ao)	.90	.90	.80	.92	.88 (Ch-1)

### Requirements Source

Operational Requirements Document (ORD) Revision 3 dated April 8, 1996

### Change Explanations

(Ch-1) Operational Availability current estimate changed from .85 to .88 to reflect data as of December 2013.

### Memo

Demonstrated Performance for Sustained Speed and Vehicles (Sq Ft) reflect performance during LPD 17 BT.

Demonstrated Performance for Troops, Cargo (Cubic Feet), LCAC, and VTOL Land/Launch Spots reflect measurements taken during LPD 17 Sail Away Trials.

Demonstrated Performance for Bulk Fuel, VTOL Maint/Storage, and Sustained Operations reflect performance during LPD 17 Class IOT&E events.

Demonstrated Performance for Ao reflects performance cited in the LPD 17 Class OPEVAL report dated January 2010.

**Acronyms and Abbreviations**

BT - Builder's Trials

Gals - gallons

IOT&E - Initial Operational Test and Evaluation

K/k - Thousands

Kts - Knots

LCAC - Landing Craft Air Cushion

mins - minutes

NM - Nautical Miles

OPEVAL - Operational Evaluation

Sq Ft - square feet

VTOL - Vertical Take-Off and Landing

## Track to Budget

### RDT&E

Appn	BA	PE		
Navy	1319	05	0604311N	
	<b>Project</b>		<b>Name</b>	
	2283		LPD 17 Class Systems Integration	(Shared) (Sunk)

### Procurement

Appn	BA	PE		
Navy	1611	01	0204411N	
	<b>Line Item</b>		<b>Name</b>	
	0946		LPD Class Support Equipment	(Shared)
	0981		Items Less Than \$5M	(Shared) (Sunk)
Navy	1611	03	0204411N	
	<b>Line Item</b>		<b>Name</b>	
	3036		LPD-17	
Navy	1611	05	0204411N	
	<b>Line Item</b>		<b>Name</b>	
	5110		Outfitting	(Shared)
	5300		Completion of Prior Year Shipbuilding Programs	(Shared)

Funding in BA 01 / ICN 0981 and BA 01 / Line Item 0946 is for non-acquisition related efforts and is not included in the APB objective.

## Cost and Funding

### Cost Summary

#### Total Acquisition Cost and Quantity

Appropriation	BY1996 \$M			BY1996 \$M	TY \$M		
	SAR Baseline Dev Est	Current APB Development Objective/Threshold		Current Estimate	SAR Baseline Dev Est	Current APB Development Objective	Current Estimate
RDT&E	78.7	111.3	122.4	116.1	77.8	114.0	120.1
Procurement	8939.4	14347.1	15781.8	14265.8	10684.0	18714.0	19005.2
Flyaway	--	--	--	14121.8	--	--	18762.2
Recurring	--	--	--	14084.1	--	--	18694.7
Non Recurring	--	--	--	37.7	--	--	67.5
Support	--	--	--	144.0	--	--	243.0
Other Support	--	--	--	144.0	--	--	243.0
Initial Spares	--	--	--	0.0	--	--	0.0
MILCON	0.0	0.0	--	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	--	0.0	0.0	0.0	0.0
Total	9018.1	14458.4	N/A	14381.9	10761.8	18828.0	19125.3

Confidence Level for Current APB Cost 95% -

The confidence level is supported by the maturity level of the program which is over 80% delivered, and the remaining ships of the class are under fixed price contracts.

Quantity	SAR Baseline Dev Est	Current APB Development	Current Estimate
RDT&E	0	0	0
Procurement	12	11	11
Total	12	11	11

## Cost and Funding

### Funding Summary

#### Appropriation and Quantity Summary FY2015 President's Budget / December 2013 SAR (TY\$ M)

Appropriation	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	To Complete	Total
RDT&E	120.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	120.1
Procurement	18632.4	52.6	90.2	139.2	52.3	30.7	7.8	0.0	19005.2
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2015 Total	18752.5	52.6	90.2	139.2	52.3	30.7	7.8	0.0	19125.3
PB 2014 Total	18540.8	45.0	68.1	102.9	54.1	31.4	0.0	0.0	18842.3
Delta	211.7	7.6	22.1	36.3	-1.8	-0.7	7.8	0.0	283.0

Quantity	Undistributed	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	0
Production	0	11	0	0	0	0	0	0	0	11
PB 2015 Total	0	11	0	0	0	0	0	0	0	11
PB 2014 Total	0	11	0	0	0	0	0	0	0	11
Delta	0	0	0	0	0	0	0	0	0	0



## Cost and Funding

### Annual Funding By Appropriation

#### Annual Funding TY\$

#### 1319 | RDT&E | Research, Development, Test, and Evaluation, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway TY \$M	Non End Item Recurring Flyaway TY \$M	Non Recurring Flyaway TY \$M	Total Flyaway TY \$M	Total Support TY \$M	Total Program TY \$M
1990	--	--	--	--	--	--	0.5
1991	--	--	--	--	--	--	4.9
1992	--	--	--	--	--	--	1.2
1993	--	--	--	--	--	--	10.3
1994	--	--	--	--	--	--	28.0
1995	--	--	--	--	--	--	10.8
1996	--	--	--	--	--	--	9.2
1997	--	--	--	--	--	--	4.3
1998	--	--	--	--	--	--	12.9
1999	--	--	--	--	--	--	1.3
2000	--	--	--	--	--	--	2.3
2001	--	--	--	--	--	--	0.2
2002	--	--	--	--	--	--	0.5
2003	--	--	--	--	--	--	5.6
2004	--	--	--	--	--	--	3.1
2005	--	--	--	--	--	--	7.4
2006	--	--	--	--	--	--	8.5
2007	--	--	--	--	--	--	4.8
2008	--	--	--	--	--	--	0.3
2009	--	--	--	--	--	--	--
2010	--	--	--	--	--	--	4.0
<b>Subtotal</b>	--	--	--	--	--	--	<b>120.1</b>

**Annual Funding BY\$****1319 | RDT&E | Research, Development, Test, and Evaluation, Navy**

<b>Fiscal Year</b>	<b>Quantity</b>	<b>End Item Recurring Flyaway BY 1996 \$M</b>	<b>Non End Item Recurring Flyaway BY 1996 \$M</b>	<b>Non Recurring Flyaway BY 1996 \$M</b>	<b>Total Flyaway BY 1996 \$M</b>	<b>Total Support BY 1996 \$M</b>	<b>Total Program BY 1996 \$M</b>
1990	--	--	--	--	--	--	0.6
1991	--	--	--	--	--	--	5.4
1992	--	--	--	--	--	--	1.3
1993	--	--	--	--	--	--	10.8
1994	--	--	--	--	--	--	28.7
1995	--	--	--	--	--	--	10.9
1996	--	--	--	--	--	--	9.1
1997	--	--	--	--	--	--	4.2
1998	--	--	--	--	--	--	12.5
1999	--	--	--	--	--	--	1.2
2000	--	--	--	--	--	--	2.2
2001	--	--	--	--	--	--	0.2
2002	--	--	--	--	--	--	0.5
2003	--	--	--	--	--	--	5.1
2004	--	--	--	--	--	--	2.7
2005	--	--	--	--	--	--	6.4
2006	--	--	--	--	--	--	7.1
2007	--	--	--	--	--	--	3.9
2008	--	--	--	--	--	--	0.2
2009	--	--	--	--	--	--	--
2010	--	--	--	--	--	--	3.1
<b>Subtotal</b>	--	--	--	--	--	--	<b>116.1</b>

**Annual Funding TY\$****1611 | Procurement | Shipbuilding and Conversion, Navy**

<b>Fiscal Year</b>	<b>Quantity</b>	<b>End Item Recurring Flyaway TY \$M</b>	<b>Non End Item Recurring Flyaway TY \$M</b>	<b>Non Recurring Flyaway TY \$M</b>	<b>Total Flyaway TY \$M</b>	<b>Total Support TY \$M</b>	<b>Total Program TY \$M</b>
1996	1	1051.9	--	--	1051.9	--	1051.9
1997	--	--	--	--	--	--	--
1998	--	96.0	--	--	96.0	--	96.0
1999	1	653.2	--	--	653.2	--	653.2
2000	2	1557.6	--	--	1557.6	--	1557.6
2001	--	592.3	--	--	592.3	--	592.3
2002	--	418.1	--	--	418.1	--	418.1
2003	1	1240.8	--	--	1240.8	--	1240.8
2004	1	1655.1	--	--	1655.1	--	1655.1
2005	1	1314.2	--	--	1314.2	--	1314.2
2006	1	3304.0	--	--	3304.0	--	3304.0
2007	--	471.6	--	--	471.6	--	471.6
2008	1	1603.1	--	--	1603.1	--	1603.1
2009	1	1033.1	--	--	1033.1	--	1033.1
2010	--	1234.1	--	--	1234.1	--	1234.1
2011	--	60.5	--	--	60.5	--	60.5
2012	1	1956.9	--	--	1956.9	--	1956.9
2013	--	146.9	--	--	146.9	243.0	389.9
2014	--	52.6	--	--	52.6	--	52.6
2015	--	77.6	--	12.6	90.2	--	90.2
2016	--	105.1	--	34.1	139.2	--	139.2
2017	--	31.5	--	20.8	52.3	--	52.3
2018	--	30.7	--	--	30.7	--	30.7
2019	--	7.8	--	--	7.8	--	7.8
<b>Subtotal</b>	<b>11</b>	<b>18694.7</b>	<b>--</b>	<b>67.5</b>	<b>18762.2</b>	<b>243.0</b>	<b>19005.2</b>

**Annual Funding BY\$****1611 | Procurement | Shipbuilding and Conversion, Navy**

<b>Fiscal Year</b>	<b>Quantity</b>	<b>End Item Recurring Flyaway BY 1996 \$M</b>	<b>Non End Item Recurring Flyaway BY 1996 \$M</b>	<b>Non Recurring Flyaway BY 1996 \$M</b>	<b>Total Flyaway BY 1996 \$M</b>	<b>Total Support BY 1996 \$M</b>	<b>Total Program BY 1996 \$M</b>
1996	1	1024.9	--	--	1024.9	--	1024.9
1997	--	--	--	--	--	--	--
1998	--	90.1	--	--	90.1	--	90.1
1999	1	603.5	--	--	603.5	--	603.5
2000	2	1403.4	--	--	1403.4	--	1403.4
2001	--	515.9	--	--	515.9	--	515.9
2002	--	362.1	--	--	362.1	--	362.1
2003	1	1015.9	--	--	1015.9	--	1015.9
2004	1	1307.6	--	--	1307.6	--	1307.6
2005	1	994.2	--	--	994.2	--	994.2
2006	1	2414.4	--	--	2414.4	--	2414.4
2007	--	329.5	--	--	329.5	--	329.5
2008	1	1083.5	--	--	1083.5	--	1083.5
2009	1	678.1	--	--	678.1	--	678.1
2010	--	783.8	--	--	783.8	--	783.8
2011	--	37.3	--	--	37.3	--	37.3
2012	1	1181.2	--	--	1181.2	--	1181.2
2013	--	87.1	--	--	87.1	144.0	231.1
2014	--	30.6	--	--	30.6	--	30.6
2015	--	44.3	--	7.2	51.5	--	51.5
2016	--	58.8	--	19.1	77.9	--	77.9
2017	--	17.3	--	11.4	28.7	--	28.7
2018	--	16.5	--	--	16.5	--	16.5
2019	--	4.1	--	--	4.1	--	4.1
<b>Subtotal</b>	<b>11</b>	<b>14084.1</b>	<b>--</b>	<b>37.7</b>	<b>14121.8</b>	<b>144.0</b>	<b>14265.8</b>

The LPD 17 class program closeout costs are reflected in the non-recurring flyaway cost spread over FY 2015-2017.

**Cost Quantity Information**

**1611 | Procurement | Shipbuilding and Conversion, Navy**

<b>Fiscal Year</b>	<b>Quantity</b>	<b>End Item Recurring Flyaway (Aligned with Quantity) BY 1996 \$M</b>
1996	1	1813.2
1997	--	--
1998	--	--
1999	1	1162.4
2000	2	2346.2
2001	--	--
2002	--	--
2003	1	1318.5
2004	1	1250.0
2005	1	1135.6
2006	1	1223.6
2007	--	--
2008	1	1301.3
2009	1	1269.2
2010	--	--
2011	--	--
2012	1	1264.1
2013	--	--
2014	--	--
2015	--	--
2016	--	--
2017	--	--
2018	--	--
2019	--	--
<b>Subtotal</b>	<b>11</b>	<b>14084.1</b>

## Low Rate Initial Production

	Initial LRIP Decision	Current Total LRIP
Approval Date	6/17/1996	6/17/1996
Approved Quantity	12	12
Reference	Milestone II ADM	Milestone II ADM
Start Year	1996	1996
End Year	2015	2015

The Current Total LRIP Quantity is more than 10% of the total production quantity due to the Acquisition Decision Memorandum (ADM) dated June 17, 1996 approving 12 LRIP ships which is standard for shipbuilding programs.

## **Foreign Military Sales**

None

## **Nuclear Costs**

None

## Unit Cost

### Unit Cost Report

	BY1996 \$M	BY1996 \$M	
Unit Cost	Current UCR Baseline (SEP 2011 APB)	Current Estimate (DEC 2013 SAR)	BY % Change

#### Program Acquisition Unit Cost (PAUC)

Cost	14458.4	14381.9	
Quantity	11	11	
Unit Cost	1314.400	1307.445	-0.53

#### Average Procurement Unit Cost (APUC)

Cost	14347.1	14265.8	
Quantity	11	11	
Unit Cost	1304.282	1296.891	-0.57

	BY1996 \$M	BY1996 \$M	
Unit Cost	Revised Original UCR Baseline (OCT 2005 APB)	Current Estimate (DEC 2013 SAR)	BY % Change

#### Program Acquisition Unit Cost (PAUC)

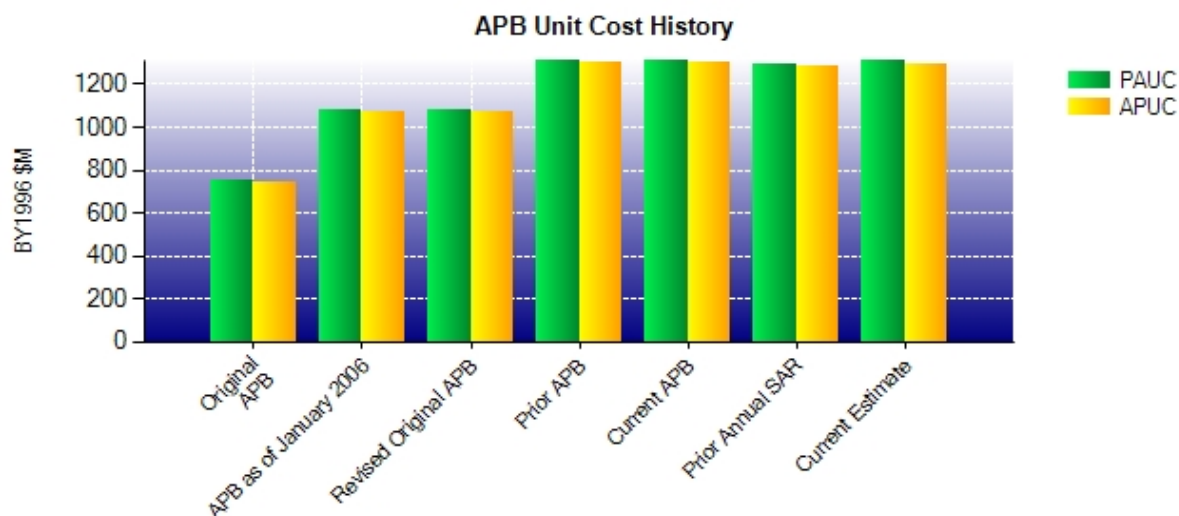
Cost	12955.2	14381.9	
Quantity	12	11	
Unit Cost	1079.600	1307.445	+21.10

#### Average Procurement Unit Cost (APUC)

Cost	12842.4	14265.8	
Quantity	12	11	
Unit Cost	1070.200	1296.891	+21.18



## Unit Cost History



	Date	BY1996 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	JUN 1996	751.508	744.950	896.817	890.333
APB as of January 2006	OCT 2005	1079.600	1070.200	1283.233	1273.642
Revised Original APB	OCT 2005	1079.600	1070.200	1283.233	1273.642
Prior APB	DEC 2010	1314.400	1304.282	1711.636	1701.273
Current APB	SEP 2011	1314.400	1304.282	1711.636	1701.273
Prior Annual SAR	DEC 2012	1292.782	1282.227	1712.936	1702.018
Current Estimate	DEC 2013	1307.445	1296.891	1738.664	1727.745

## SAR Unit Cost History

### Current SAR Baseline to Current Estimate (TY \$M)

Initial PAUC Dev Est	Changes								PAUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
896.817	90.527	-52.843	83.245	0.000	511.227	187.600	22.091	841.847	1738.664

## Current SAR Baseline to Current Estimate (TY \$M)

Initial APUC Dev Est	Changes								APUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
890.333	90.509	-53.434	82.691	0.000	507.955	187.600	22.091	837.412	1727.745

## SAR Baseline History

Item/Event	SAR Planning Estimate (PE)	SAR Development Estimate (DE)	SAR Production Estimate (PdE)	Current Estimate
Milestone I	JAN 1993	JAN 1993	N/A	JAN 1993
Milestone II	JUL 1995	JUN 1996	N/A	JUN 1996
Milestone III	OCT 2003	AUG 2007	N/A	N/A
IOC	OCT 2003	N/A	N/A	N/A
Total Cost (TY \$M)	59.1	10761.8	N/A	19125.3
Total Quantity	N/A	12	N/A	11
Prog. Acq. Unit Cost (PAUC)	N/A	896.817	N/A	1738.664

**Cost Variance**

Summary Then Year \$M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Dev Est)	77.8	10684.0	--	10761.8
Previous Changes				
Economic	+0.2	+989.8	--	+990.0
Quantity	--	-1478.1	--	-1478.1
Schedule	+6.1	+909.6	--	+915.7
Engineering	--	--	--	--
Estimating	+36.0	+5553.3	--	+5589.3
Other	--	+2063.6	--	+2063.6
Support	--	--	--	--
Subtotal	+42.3	+8038.2	--	+8080.5
Current Changes				
Economic	--	+5.8	--	+5.8
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	--	+34.2	--	+34.2
Other	--	--	--	--
Support	--	+243.0	--	+243.0
Subtotal	--	+283.0	--	+283.0
Total Changes	+42.3	+8321.2	--	+8363.5
CE - Cost Variance	120.1	19005.2	--	19125.3
CE - Cost & Funding	120.1	19005.2	--	19125.3

Summary Base Year 1996 \$M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Dev Est)	78.7	8939.4	--	9018.1
Previous Changes				
Economic	--	--	--	--
Quantity	--	-1325.1	--	-1325.1
Schedule	+4.8	+408.8	--	+413.6
Engineering	--	--	--	--
Estimating	+32.6	+4549.4	--	+4582.0
Other	--	+1532.0	--	+1532.0
Support	--	--	--	--
Subtotal	+37.4	+5165.1	--	+5202.5
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	--	+17.3	--	+17.3
Other	--	--	--	--
Support	--	+144.0	--	+144.0
Subtotal	--	+161.3	--	+161.3
Total Changes	+37.4	+5326.4	--	+5363.8
CE - Cost Variance	116.1	14265.8	--	14381.9
CE - Cost & Funding	116.1	14265.8	--	14381.9

Previous Estimate: December 2012

Procurement		\$M	
Current Change Explanations		Base Year	Then Year
Revised escalation indices. (Economic)		N/A	+5.8
Adjustment for current and prior escalation. (Estimating)		-3.3	-5.2
Miscellaneous adjustments to post delivery and outfitting budgets. (Estimating)		+19.2	+34.1
Sequestration reduction and restoral via cost to complete funding. (Estimating)		-1.8	-0.1
Reduction to program closeout funding profile in FY 2015 to FY 2017. (Estimating)		-27.7	-48.7
LPD 26 cost to complete funding for contract clauses related to Avondale closure and Katrina, Pension Protection Act impacts, and contract cost growth. (Estimating)		+30.9	+54.1
Addition of Advanced Procurement funding for 12th LPD 17 class ship. (Support)		+144.0	+243.0
Procurement Subtotal		+161.3	+283.0

## Contracts

### Appropriation: Procurement

Contract Name	<b>LPD 26</b>
Contractor	Huntington Ingalls Industries
Contractor Location	1000 Access Road Pascagoula, MS 39567-0149
Contract Number, Type	N00024-06-C-2222/26, FPIF
Award Date	April 01, 2011
Definitization Date	April 01, 2011

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price at Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1487.2	1690.0	1	1510.5	1717.7	1	1590.5	1601.0

### Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the incorporation of engineering change proposals and negotiation of a contract price adjustment to cover the Navy's share of corporate office and general insurance expenses following completion of the spin-off of Northrop Grumman's shipbuilding division.

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/19/2014)	-63.8	+20.8
Previous Cumulative Variances	-52.7	-35.5
Net Change	-11.1	+56.3

### Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to craft inefficiency, which was driven by an insufficient skill mix across the labor force and resulted in the requirement for additional rework. The shipbuilder has been conducting training to mitigate the risk of future rework and improve the skill mix across the labor force. Over-runs in General & Administrative costs and overhead are also contributing factors regarding the cumulative cost variance.

The favorable net change in the schedule variance is due to the Over Target Schedule which was implemented in June 2013 revising the Performance Management Baseline and establishing new schedule objectives.

### Contract Comments

LPD 26 construction is being performed at Huntington Ingalls Industries, Pascagoula Operations.

The program manager's estimated price at completion includes estimates of the government liabilities for contract clauses associated with deferred depreciation from Hurricane Katrina and the Avondale restructuring/closure. Implementation of changes to safety regulations and federal law associated with the Occupational Safety and Health Administration and the Pension Protection Act are also included. Cost growth can be attributed to overhead rate increases, unforeseen craft inefficiencies, engineering overruns, and material escalation.

## Deliveries and Expenditures

Delivered to Date	Plan to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	0	--
Production	9	9	11	81.82%
Total Program Quantity Delivered	9	9	11	81.82%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	19125.3	Years Appropriated	25
Expended to Date	16134.8	Percent Years Appropriated	83.33%
Percent Expended	84.36%	Appropriated to Date	18805.1
Total Funding Years	30	Percent Appropriated	98.33%

The above data is current as of 3/5/2014.

## Operating and Support Cost

### LPD 17

#### Assumptions and Ground Rules

##### Cost Estimate Reference:

Cost element data was pulled from the Navy's Visibility and Management of Operating and Support Costs (VAMOSOC) system. Date of the most recent Program Office estimate is March 4, 2014.

##### Sustainment Strategy:

The LPD 17 program is an 11-ship class with a 40-year expected service life. Life cycle engineering and support contracts with the shipbuilder and the Integrated Shipboard Electronics (ISE) contractor, along with In Service Engineering Agent (ISEA) support contracts, are in place to support sustainment efforts.

Responsibilities have been divided to leverage strengths; the shipbuilder maintains the planning yard while the program office manages life-cycle maintenance, modernization, and logistics. Phased maintenance and dry dock availabilities are planned on a standard cycle; and continuous maintenance availabilities are conducted in between.

##### Antecedent Information:

The LPD 4 class is one of the four amphibious ship classes being functionally replaced by the LPD 17 class. The cost element data for the LPD 4 class was pulled from the Navy's VAMOSOC system for all available years of data; and the average annual costs per LPD 4 class ship were based on all available years of data. The estimate included 11 ships and a 40-year life cycle to mirror the LPD 17 class profile and expected service life. The estimate also incorporated actual LPD 4 commissioning and decommissioning profiles. The average annual costs per LPD 4 class ship were calculated in base-year 1996 dollars for each cost element.

The cost element estimates for the LPD 4 class were not revised from last year's SAR submission as all, but one, LPD 4 class ships were decommissioned prior to 2013.



Unitized O&S Costs BY1996 \$M		
Cost Element	LPD 17 Average Annual Cost per Ship	LPD 4 (Antecedent) Average Annual Cost per Ship
Unit-Level Manpower	16.300	12.300
Unit Operations	4.800	3.900
Maintenance	8.100	8.600
Sustaining Support	0.700	0.900
Continuing System Improvements	1.000	2.400
Indirect Support	9.600	8.300
Other	0.000	0.000
Total	40.500	36.400

Unitized Cost Comments:

The cost element data for the LPD 17 class was pulled from the Navy's VAMOSC system. The average annual costs per LPD 17 class ship are based on actual VAMOSC data from 2006 through 2013. The one exception to that basis was the absence of unit-level manpower data for 2013 in VAMOSC.

Average crew size for an LPD 17 class ship is 363; average crew size for an LPD 4 class ship was 364.

The total operating and support cost estimates for both the LPD 17 class and LPD 4 class are based on 11 ships over the same 40-year life cycle timeframe (Total Average Annual Cost per Hull x 11 hulls x 40 years).

	Total O&S Cost \$M			
	Current Development APB Objective/Threshold		Current Estimate	
	LPD 17		LPD 17	LPD 4 (Antecedent)
Base Year	N/A	N/A	17820.0	16016.0
Then Year	N/A	N/A	40205.0	38253.0

Total O&S Costs Comments:

The increase in the LPD 17 class total O&S cost estimate was driven by increased operational tempo and changes to employee benefits programs. Those increases were partially offset by a decrease in maintenance as the LPD 17 class moves forward from the reliability issues experienced on the early ships of the class.

O&S Cost Variance		
Category	Base Year 1996 \$M	Change Explanation
Prior SAR Total O&S Estimate – December 2012	16,984.0	
Cost Estimating Methodology	0.0	
Cost Data Update	+836.0	Included 2013 data in calculation of estimate.
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Programmatic/Planning	0.0	

Factors		
Other	0.	
Total Changes	+836.0	
Current Estimate	17,820.0	

**Disposal Costs:**

The estimate for total disposal costs for the LPD 17 class is \$56.1M (FY 1996 BY dollars).